

## EFFECT OF ULTRA-LOW CONCENTRATIONS AND ELECTROMAGNETIC FIELDS

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«Effect of ultra-low concentration and electromagnetic fields» was discovered [1-6]. This phenomenon consists in formation of nanosized associates (nanoassociates) in highly diluted aqueous solutions ( $10^{-20}$  -  $10^{-6}$  M) in the presence of external electromagnetic fields. The main part of such nanoassociates is water. Nanoassociate parameters change nonlinearly with a change in the concentration of solutes (the effective hydrodynamic diameter and  $\zeta$ -potential are within 100-400 nm and in the range from -2 to -20 mV). It was established that changes of nanoassociates properties (size and  $\zeta$ -potential) depending on solute concentration determine changes of physicochemical and biological properties of such solutions. It has been shown that the extreme values of nanoassociates parameters, solution characteristics, and bioeffects are observed in nearly the same concentration ranges of BACs in solutions. We have established that a definite molecular structure of a substance is necessary for the formation of nanoassociates and "anomalous" properties in aqueous solutions in low concentrations, i.e. there are substances either able or not able to exhibit this effect.

We have shown that, in addition to the solutes and the water structures connected with them driving force of the nanoassociate formation in solutions in the interval of concentration  $10^{-7}$  -  $10^{-20}$  M are the low intensity electromagnetic fields. The nanoassociates don't form and solutions do not exhibit any anomalous properties in hypogeomagnetic conditions.

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